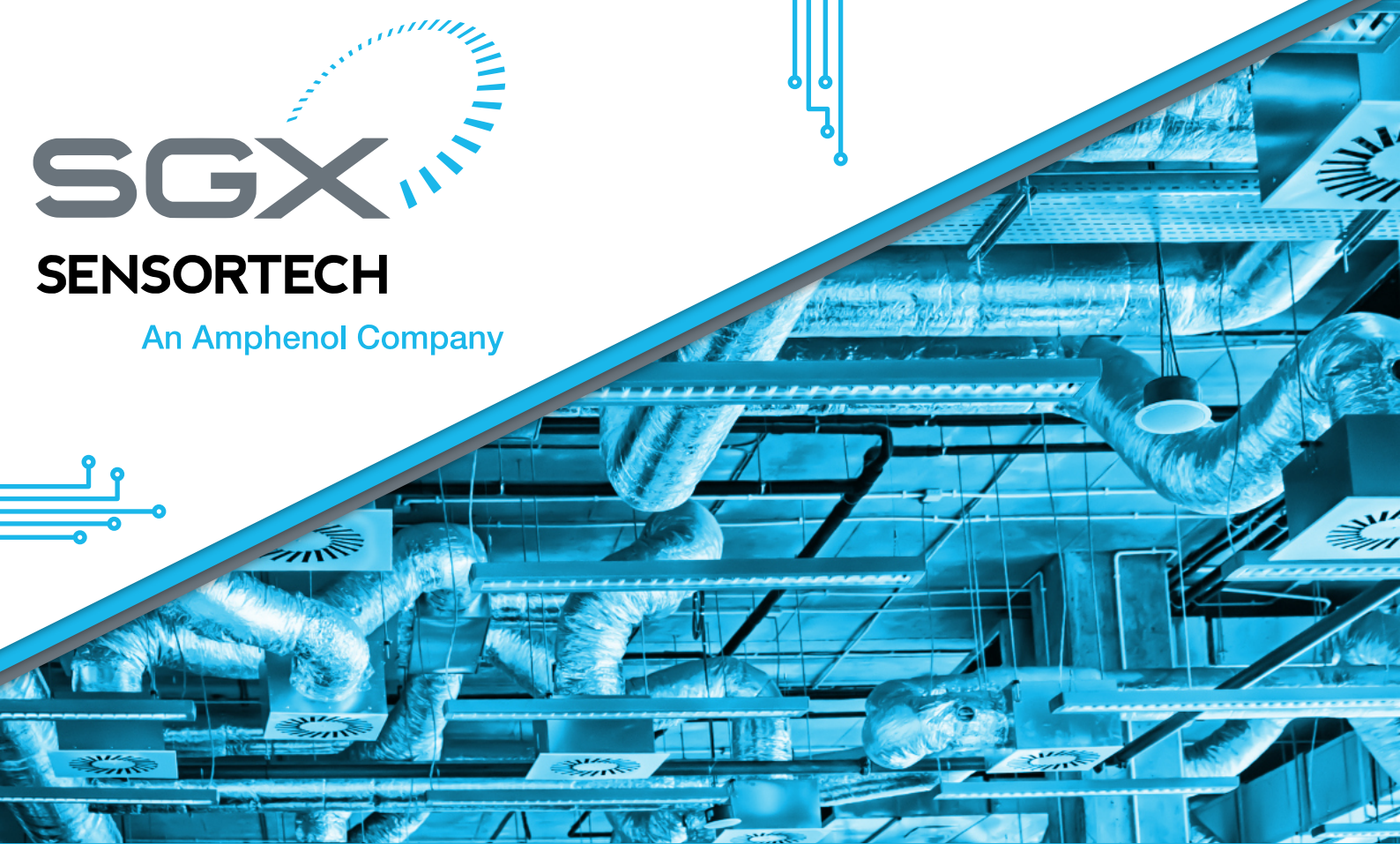# SGX
SENSORTECH
An Amphenol Company

MiCS-VZ-89TE

Integrated sensor board for Indoor Air Quality monitoring

Datasheet

MiCS-VZ-89TE

The **MiCS-VZ-89TE** combines state-of-the-art MOS sensor technology with intelligent detection algorithms to monitor tVOCsand CO_2 equivalent variations in confined spaces, e.g. meeting rooms or vehicle cabins.
The dual signal output can be used to control ventilation on-demand, saving energy and reducing cost-of-ownership.
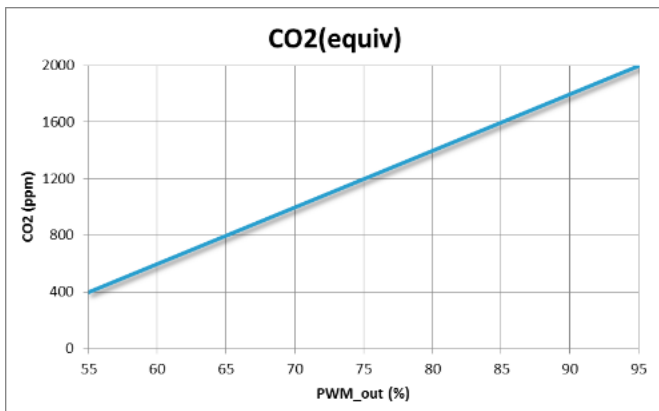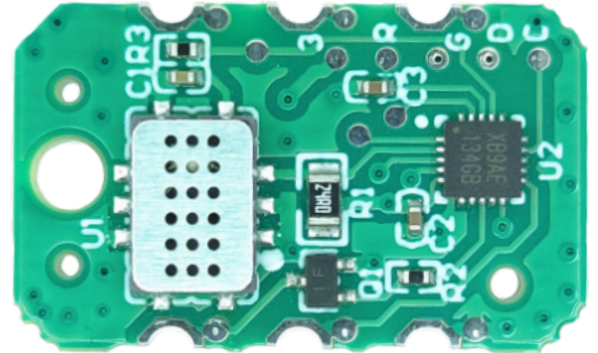
Quality, Safety, Responsibility
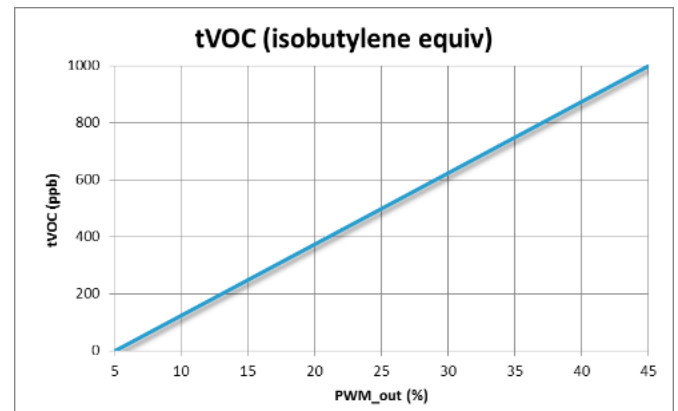
Functional specifications

Features

- Calibration-free
- Low power
- Wide VOCs detection range
- High sensitivity
- High resistance to shocks and vibrations

Detectable gases

- Volatile Organic Compounds   VOCs
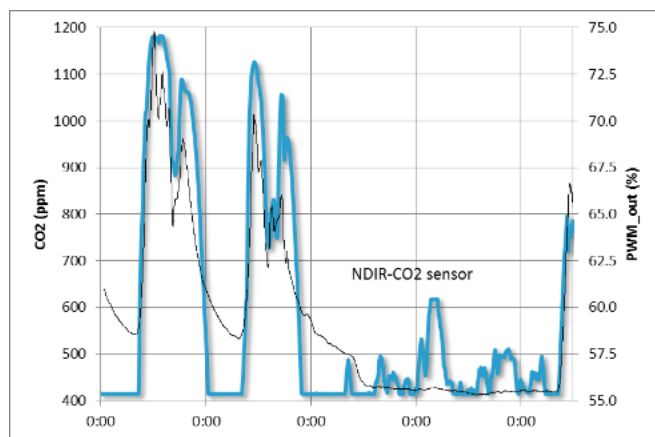- Equivalent Carbon Dioxide CO_2 (equiv)

Conversion from PWM output signal of **MICS-VZ-89TE** to equivalent Carbon Dioxide concentration in ppm

Conversion from PWM output signal of **MICS-VZ-89TE** to equivalent tVOC concentration in ppb

Comparison between **MICS-VZ-89TE** output signal and NDIR CO2 sensor signal over a duration of 4 consecutive days (Thu – Sun)

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Performance

Detection Method	Semiconductor gas sensor, detecting a wide range of VOCs
Monitoring Range	400-2000 ppm equivalent CO2 0-1000 ppb isobutylene equivalent tVOCs
PWM Output	Pin 1 : TTL output 30Hz +/-1%, Range 5…95%, duty cycle 3.3V Use a pull-up resistance between Pin 1 and Pin 6 Pull-up value: typ. 10kOhms for 3.3V operation
I2C Output	Pin 2 and 4 : Pull-up of 4.7 kOhms on master SDA and SCL
Response Time	Equivalent to conventional NDIR-CO2 sensors < 5 seconds for tVOC
Refresh Output Frequency	1 Hz

Operation

Supply Voltage	3.3V DC regulated +/-5%
Operating Power	125 mW
Warm-up Time	15 min
Operating Temperature	0°C to 50°C
Operating Humidity	0%RH to 95%RH (non condensing)
Storage Temperature	-40°C to 80°C
Storage Humidity	0%RH to 95%RH (non condensing)

IMPORTANT PRECAUTIONS

Read the following instructions carefully before using the indoor air quality sensor described in this document to avoid erroneous readings and to prevent the device from permanent damage.

- The sensor must not be exposed to **high concentrations** of organic solvents, ammonia, silicone vapour orcigarette- smoke in order to avoid poisoning the sensitive layer.
- The sensor should be protected against water and dust projections.
- SGX strongly recommends using ESD protection equipment to handle the sensor.
- For any additional questions, contact SGX Sensortech

MiCS-VZ-89TE - Power-on Self-Test

Parameter	Criteria	Failed Diagnostic Indicator
Sensor Resistance Range	Range Check	PWM < 5 % at Power ON
Sensor Operating Power	Range Check	PWM < 5 % at Power ON